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Here and there the English used is not beyond question, being sometimes inelegant, sometimes confused. The term "urinogenital" has been cast into limbo by Huxley (*Life and Letters*, Vol. II, p. 65), but language is a dangerous thing to discuss. So much depends upon the point of view, and our authors have occupied a peculiar position for seeing things, as we learn from the legend of Fig. 200, which represents the right half of a lamprey "seen from the inside of a female specimen." The mechanical part of the work is well done, and the illustrations, mostly zinc etchings, are clear, and as a rule bring out well the points made in the text.

K.

Notes. — Wallengren (*Jenaische Zeitschrift für Naturwissenschaften*, Bd. XXXVI, pp. 165–180, Taf. VII–VIII) gives a brief but interesting account of the innervation of the proboscis of some of the polychæte worms. The sense cells always occur in the papillæ of the proboscis, never on the surface between papillæ. In Nephthys and Phyllodoce they are radially arranged within a papilla, but in Glycera and Goniada they are grouped into multicellular organs, and single sense cells do not occur. In all cases the distal ends of the sense cells pierce the superficial cuticula, and in Glycera at least they end externally in a brushlike expansion. Proximally the fiber from each cell body either passes undivided to the central organs, as in Nephthys, or gives off branches at the base of the papillæ, forming a subcutaneous nerve plexus as in Glycera. No observations were made on the functions of these organs.

The ganglion cells of the electric lobes in the Torpedo are said by Hatai (*Journal Cincinnati Society of Natural History*, Vol. XX, pp. 1–12, Pl. I) to show an apparent fibrillar structure such as that described long ago by Max Schultze. Bundles of fibrils seem to enter the cell from the dendrites as well as from the neurite. This appearance, however, is due to the form of the protoplasmic reticulum, the meshes of which are much drawn out in the regions of the cell processes, and does not indicate the presence of true nerve fibrillæ. While the bundles of fibrillæ as described by Schultze are thus explained away, those discovered by Bethe and Apàthy belong to another category and probably are real structures. Gradations from the ordinary mesh work to the mesh work with fibrillar appearance have been described by Hatai in the spinal ganglion cells of the white rat.

An ingenious method of recording egg development for the use of fish culturists has been devised by C. Wallich (*United States*

Fish Commission Report for 1900, pp. 185–194). It is well known that fish eggs develop much more rapidly in warm water than in cold, and when, as is often the case, the temperature of the water at a hatching station varies from day to day, it is often difficult to estimate the stage of development reached by a given lot of eggs. This difficulty can be overcome by the use of the temperature unit system. By a "temperature unit" is meant one degree Fahrenheit above 32° F. for one day. Thus 36° F. for a day is equivalent to four temperature units. In any lot of eggs the stage of development is recorded by adding the temperature units to which they have been subjected since fertilization. The success of such a system depends upon the uniformity of its results. As judged from the experiments on salmon at the government station at Baird, Cal., the method gives a close approximation to uniformity. In something over fifty lots of salmon eggs, in which the incubation period varied from forty-eight to ninety days, the greater number of eggs hatched at about nine hundred temperature units, the extremes being 874 and 940. The utility of this method, not only to fish culturists but also to embryologists, is evident.

C. E. Beecher has contributed to the series of Yale Bicentennial Publications a volume entitled *Studies in Evolution* (New York, Charles Scribner's Sons, 1901). The volume is made up mainly of reprints selected from the publications of the Laboratory of Invertebrate Paleontology at Yale, and contains studies on the origin and significance of spines, on the structure and development of trilobites, and on the development of brachiopods. Most of the papers have already appeared in various journals, but their collection into a single volume will be welcomed by advanced students, not only as evidence of the work done at Yale, but as an indication of the new fields into which modern paleontological research is making its way.

The stony corals of the Porto Rican waters have been reported upon by T. W. Vaughan (*United States Fish Commission Bulletin for 1900*, Vol. II, pp. 289–320, Pls. I–XXXVIII). About twenty-five species are recorded and beautifully illustrated by process plates from photographs.

C. W. Hargitt and C. G. Rogers give an account of the Alcyonaria of Porto Rico (*United States Fish Commission Bulletin for 1900*, Vol. II, pp. 265–287, Pls. I–IV). Some twenty-five species are reported, of which five are new.

A descriptive catalogue of the mollusks of Porto Rico, with a check list of species, has been prepared by W. H. Dall and C. T. Simpson (*United States Fish Commission Bulletin for 1900*, Vol. I, pp. 351–524, Pls. LIII–LVIII). In all, about 650 species are recorded, of which forty-two are new. The report is illustrated by excellent figures, and has a good index.

BOTANY.

The Yearbook of the Department of Agriculture.[1] — The growing size, complexity, and activity of the national Department of Agriculture has led to attempts to simplify its publications by the establishment of series accredited to the several divisions and more or less closely pertaining to the nominal work of the latter; and a few years ago the secretary had the happy idea of confining the annual volume — before that called a *Report* — to an administrative and scientific summation of the year's work, under the title *Yearbook*. Difficulty appears to have been experienced in carrying out this idea, however, and the *Yearbook* has once more approximated its former size and character, notwithstanding the voluminous annual aggregate of bulletins and circulars published from the several divisions. In addition to the report of the secretary and an appendix of over two hundred pages, collectively constituting the report proper, the *Yearbook* for 1900 includes a biographic sketch of the late William Saunders, for many years connected with the care of the grounds and plant houses of the Department, and no less than thirty special articles, on such subjects as Smyrna fig culture, date culture, practical foresty in the southern Appalachians, etc., — all of interest and value.

T.

Britton's Manual.[2] — The most potent means of impressing ideas or facts on the public mind lies in their concrete presentation in such form as to insure ready accessibility and invite frequent reference. When, in 1892, the American botanists assembled at Rochester adopted a nomenclature codification which involved extensive changes

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[1] *Yearbook of the United States Department of Agriculture*, 1900. Washington, Government Printing Office, 1901. 888 pp., 87 pls., and numerous figs.

[2] Britton, N. L. *Manual of the Flora of the Northern States and Canada.* New York, Henry Holt & Co., 1901. x + 1080 pp.